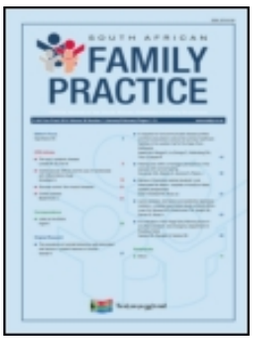

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Spirit(ed) away: preventing foetal alcohol syndrome with motivational interviewing and cognitive behavioural therapy

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Abstract

Foetal alcohol syndrome (FAS) is a growing concern in South Africa. In the Western Cape, prevalence rates for FAS are the highest in the world. Not surprisingly, the Western Cape also has some of the highest levels of alcohol consumption per capita. Although FAS is primarily caused by alcohol consumption during pregnancy, the high rate of FAS in South Africa originates from a multitude of complex factors. These factors include heritage, poverty, high levels of unemployment and low-paid menial jobs, depression, low self-esteem, low self-efficacy, increased accessibility to alcohol, lack of recreation, poor education, familial pressure, denial, cultural misconceptions and the smaller physiques of some of the women in the Western Cape. Holistic and comprehensive macro- and micro-level approaches are necessary in order to change the alcohol consumption trend that has developed over the last 300 years. No single strategy will reduce or eliminate the burden of alcohol misuse in this society. However, as the presented discussion suggests, combining the spirit of motivational interviewing (MI) with cognitive behavioural therapy (CBT) practice, borrowed from health psychological interventions for lifestyle-related chronic health conditions, holds promise for reducing the prevalence of FAS within Western Cape communities. These individual-based approaches have yet to be employed in South Africa despite the wealth of evidence that demonstrates their potential in targeting high-risk groups and reducing per capita alcohol consumption.

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Introduction

Since the arrival of the European settlers, alcohol consumption has a played a central and often controversial role in the social history of South Africa.[1] In colonial times, alcohol was exchanged for labour and goods throughout the country. Employers on wine farms in the Cape commonly used alcohol to attract and retain workers from rural areas.[2] As a result, drunkenness quickly became part of daily life among the Western Cape population.[1] Despite its illegality, parts of the Western and Northern Cape still practise the legacy of the "tot" or *dop* system, in which alcohol is utilised as partial payment for labour.[2,3]

Recent surveys approximate that 50% of men and 20% of women regularly consume alcohol in South Africa.[3] However, some researchers believe that this is not an accurate reflection of alcoholic practices in the country.[4] Although the level of absolute adult alcohol consumption per capita in South Africa is 12.4 l per year, the amount consumed per drinker is closer to 20 l per adult.[5,6] If the quantity of beer consumed in traditional settings is added to this value, South Africa becomes one of the highest per capita alcohol-drinking nations in the world.[7]

Rates of drinking vary across the different provinces in South Africa.[1] While harmful drinking refers to a pattern of alcohol consumption that results in adverse events, hazardous drinking places individuals at risk of adverse health events.[8] Studies have consistently established that harmful and hazardous drinking behaviours occur more frequently in urban, than rural areas, for both men and women in South Africa. In 2005, the highest rates of binge drinkers (24%) and hazardous drinkers (13.8%) were reported in the Western Cape.[2,8] These practices occur predominantly in the so-called "coloured" population (23%), with 11.6% of pregnant "coloured" women practising harmful drinking.[9] Staggeringly, some studies have identified that up to 50% of women in the Western Cape consume alcohol during pregnancy.[10]

Foetal alcohol syndrome and its relation to alcohol consumption

Alcohol is widely established as a teratogenic drug that is capable of causing miscarriage, stillbirth, malformation, growth deficiency and central nervous system dysfunction in children.[11] Since alcohol readily crosses the placental barrier, the alcohol levels of the foetus and mother are more or less equivalent.[12] Although the distribution of alcohol is relatively uniform in the foetus, it is proportional to the water content of the tissue. As a result, alcohol content within

the foetus is particularly high in the pancreas, kidneys, thymus, heart and brain.[13] The timing, frequency and quantity of alcohol consumption determines the teratogenic effects of in utero exposure to alcohol.[14] Consequently, the nature of the birth defect mirrors the stage of embryonic development when the toxicological offence occurred. While first-trimester exposure is associated with organ, facial and musculoskeletal anomalies, second- and third-trimester exposure is more intimately linked with growth and intellectual and behavioural deficits.[15-17] Given that alcoholism and foetal alcohol syndrome (FAS) cluster in certain families, heritability, linked to genetically determined susceptibility factors, could play a role in shaping the effects of prenatal alcohol exposure.[15]

Although the primary cause of FAS is the consumption of large quantities of alcohol, characterised as heavy drinking (approximately seven drinks per week) or binge drinking (approximately four drinks on one occasion) during pregnancy, recent studies have identified additional risk factors.[15,18] These include advanced maternal age, general alcohol abuse, high gravidity and parity, unmarried status, use of tobacco and other drugs, low socio-economic status, poor education, boredom, low levels of religiosity and cohabitation with a heavy-drinking male partner.[15,19-21]

The term "foetal alcohol spectrum disorder" is commonly used as an umbrella term to describe the continuum of abnormalities observed, from mild to severe, that result from varied foetal alcohol exposure during pregnancy.[22] Despite this, the diagnosis of FAS rests on a combination of symptoms that fall into three distinct categories. Children diagnosed with FAS display a characteristic pattern of facial anomalies such as a flattened philtrum, short palpebral fissures (causing decreased eye width), a flat midface and thinning of the upper lip.[11,23]

Furthermore, patients show evidence of growth retardation. This retardation is characterised by low birthweight, decelerating weight over time which is not attributed to malnutrition, and a disproportional low weight-to-height ratio. However, the primary feature of FAS is notable central nervous system abnormalities.[23] Patients who are diagnosed with FAS display a complex brain dysfunction that combines elements of cognitive impairment, behavioural disturbance and neurological damage.[11] These symptoms result in an assortment of neurobehavioural disturbances that range from hyperactivity and learning disabilities to depression and psychosis.[24]

Current foetal alcohol syndrome status in Western Cape

In spite of its preventability, FAS is the leading known cause of mental retardation in the Western world.[25] Although FAS occurs across populations and ethnic groups, levels of FAS in South Africa are among the highest ever recorded (as illustrated in Table I).[1,9] The first case of FAS in South Africa was documented in 1978 in a Cape Town hospital maternity unit.[22] Over the years, the prevalence of this disorder in the Western Cape has reached epidemic proportions. In 1997, the prevalence of FAS among Grade 1 students in a Western Cape community was found to be 41 to 46 per 1 000.[15] This value rose to a range of 55.2 to 74.2 per 1 000 in 2005.[21] Conversely, rates in the USA were as low as 0.5 to 2 cases per 1 000 live births.[26] Further studies have confirmed that FAS rates in poorer communities of the Western Cape are 18 to 141 times greater than those in the USA.[15] However, many researchers have also established problematic levels of FAS in other South African provinces, such as the Northern Cape, Free State and Gauteng.[21]

Table I: Highest prevalence rates of foetal alcohol syndrome per 1 000 live births in the world[21]

Geographical area	FAS prevalence rates
An isolated Canadian-Indian community	125
Western Cape, South Africa	48-75
Components of the Native-American Indian population	8
Sweden	1.3
France	1.2
United States of America	0.3-2.2

FAS: foetal alcohol syndrome

Community-specific barriers to change

A normative culture of alcohol consumption exists throughout most of South Africa. Research has recognised that currently, one in four adult males and one in 10 adult females experience symptoms of alcohol abuse.[27] This trend in the general population translates into patterns of alcohol consumption among pregnant women. In the high-risk communities of the Western Cape, alcohol consumption occurs at a rate of 40-50% in pregnant women.[21] Of these women, 24 out of 100 partake in heavy drinking and report having at least 12.6 alcoholic beverages per week.[21,28]

There are a multitude of macro and micro community-specific cultural barriers to changing this problematic pattern of alcohol consumption among pregnant women in the Western Cape. The women of this community form approximately 30% of the commercial agriculture workforce.[28] Consequently, more than two thirds of farm worker families live in poverty.[28]Adverse factors caused by poverty, high levels of unemployment and low-paid menial jobs significantly govern patterns of this type of alcohol usage.[2,21,29] Subsequently, ill health, under-nourishment, privilege deprivation, poor education, and unsupportive and overcrowded environments are distinguishing features of these communities.[29] As expected, many of the women in this social environment report struggling with feelings of depression, low self-esteem and low self-efficacy.[30] Alcohol is recurrently used as a coping mechanism and to "escape" current circumstances.[30,31] Since severe episodic drinking is perpetuated by norms within a context of despair, residing

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on and working for wine-producing farms undoubtedly exacerbates the degree of alcohol consumption.[21]

A significant contribution to this excessive alcoholic indulgence is the ease with which alcohol and drugs have become accessible through unlawful shebeens. Currently, approximately 25 000 shebeens are operating illegally in the Western Cape.[10] The inexpensive, inferior wines served at these establishments ensure that alcohol is affordable and readily available to poorer members of the community.[31] Although the illegal practice of the *dop* system has largely been replaced by shebeens, the legacy of the system is still practised among members of the so-called "coloured" community. This system has become ritualised and has made alcohol the favoured commodity among many members of the local population.[2,10]

There are distinct social patterns of alcohol consumption. In the rural areas of the Western Cape, women usually drink in groups of three or four and often engage in social binge drinking.[21] This rapid, heavy and episodic pattern of drinking predominantly occurs on the weekends (wages are often paid weekly on Fridays).[23] This sporadic drinking is a major form of recreation among subgroups of the Western Cape population.[32] Therefore, the lack of other recreational activities, particularly in rural areas, further contributes to high alcohol consumption.[23,26]

As has been established, women who are prone to alcohol abuse during pregnancy often derive from poor, marginalised communities.[21,26] Because of poor education and restricted access to health facilities, these women, and the community as a whole have very limited knowledge or understanding of the dangers associated with alcohol use during pregnancy.[21,26,33] Typically, the women descend from several generations of heavy drinkers and often continue to drink, or fail to stop drinking in time to prevent the manifestation of FAS in their foetuses.[26] Since few children in deprived communities are formally diagnosed with FAS, awareness of the prevalence of the disorder is low.[34] Furthermore, women who drink during their first pregnancy and have a healthy outcome show a significantly decreased perceived risk. This can lead to increased drinking in further pregnancies.[35] In some cases, the mothers suffer from FAS themselves. Therefore, they are often unable to identify the expression of FAS in their children.[33] Recent studies have shown that levels of mental ability moderate resistance to behaviour change in pregnant mothers. Consequently, women with high levels of alcohol-related cognitive impairment are less likely to engage in behaviour change.[36]

The use of defence mechanisms, especially denial, is a common barrier among pregnant women in the population.[37] This denial involves ignoring that FAS is a serious issue in the community and is compounded by a strong optimistic bias that is inherent in the women.[35,37] Mothers of FAS children usually derive from families with long histories of continued alcohol abuse.[38] Therefore, it is difficult for mothers who attempt to maintain sobriety to receive support.[30,37] Many women are also introduced to alcohol or illicit substances by a partner or spouse. As a result of collaborative usage, these partners tend to overlook any substance abuse on the part of the mother, or simply do not want them to stop consuming alcohol.[35,37] As a result, women commonly fear abandonment by family or friends if they try to stop abusing alcohol.

Further studies have identified some cultural misconceptions about the causes of genetic and neurological disorders such as FAS. Abuse and domestic violence during pregnancy are believed to be the causes of all disabilities in children.[39] Many women are also under the impression that only a reduction in alcohol consumption is necessary during pregnancy to avoid FAS.[30] However, mothers of children with FAS have been shown to be much smaller in size than other South African women in the same population.[23] Therefore, despite a lower consumption of alcohol, their low body mass is less efficient in dispensing and metabolising the consumed alcohol.[23] This causes FAS-related effects that are comparable with higher levels of alcohol intake in larger women.[23,40]

Combined motivational interviewing and cognitive behavioural therapy as a micro-level approach to combat foetal alcohol syndrome

FAS is one of the few birth defects that is 100% preventable through changes in maternal drinking behaviour.[30] The scientific community has yet to establish "safe" levels of alcohol consumption during pregnancy.[14] However, several studies have confirmed that even low levels of alcohol consumption can cause significant mental and behavioural changes in children.[35] As a result, intervention strategies need to promote complete abstinence from alcohol use during pregnancy as it is the only preventative measure for FAS.[30]

Since the high rate of FAS in South Africa is caused by a multitude of factors, a holistic and comprehensive approach is necessary in order to change the consumption trend that has developed over 300 years.[31] No single strategy will reduce or eliminate the burden of alcohol misuse in society.[41]

The World Health Organization argues that a mix of individual- and population-based approaches is required to target high-risk groups and reduce per capita alcohol consumption in general.[42] Common suggestions for FAS prevention are social improvement, birth control and screening for alcohol use during prenatal services.[21] However, despite these suggestions, previous intervention strategies implemented in the Western Cape have predominantly used macro-level approaches.[31] Therefore, researchers have focused more on the development of FAS-related policies, the implementation of national surveillance methods for FAS and alcohol use during pregnancy, and of product restrictions on the size of alcohol packaging, as

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well as nationwide training for healthcare professionals and community workers to improve the diagnosis and treatment of children with FAS.[31,43] Although there is great value in implementing population-based intervention strategies, these methods rarely instil preventative alcohol-related behavioural and attitude changes in women of childbearing age.[31,41]

Historically, FAS prevention efforts have focused on universal public health education strategies directed towards young women.[44] Although very few evaluation studies have been conducted on these programmes, evidence suggests that they are relatively effective in reducing alcohol consumption rates among low-risk populations.[45,46] Although this approach works with some individuals, evidence also suggests that information and advice about lifestyle change is not effective in instilling behaviour modification within individuals.[47-50] This has a success rate of only 5-10%.[48-50] This approach can cause a confrontational relationship and nonconstructive disagreement to develop between the health practitioner and client.[51] In this scenario, health practitioners typically emphasise the benefits of change, while undervaluing the personal costs. Conversely, the client usually focuses on the personal implications of change and the immediate costs, while minimising its future benefits.[52] This can cause the client to become more resistant to change.[44,52]

Evidence suggests that patient-centred approaches produce better outcomes in behaviour interventions.[53-55] Recently, FAS researchers argued that there is a growing need for nonconfrontational, supportive, person-centred interventions that address consumption behaviours at micro level in community settings in South Africa.[43,56] These individual- and group-level interventions should include education and counselling which promote contraception, safe sex, planned pregnancy, improved nutrition and changes in alcohol consumption behaviour, and in addition address the psychological distress of women, compounded by their underprivileged circumstances.[31,36,57] Women need to be supported and motivated to gain insight into the consequences of their alcohol-related health behaviour on a short-, medium- and long-term basis.[31] In order to achieve this, women need to explore the benefits of change and develop positive feelings about behaviour transformation.[56] Furthermore, they need to understand how their social context and relationships may influence changes in their behaviour. They also need to learn and effect strategies that prevent relapse.[36,56] These needs are not met by macro-level intervention strategies.

Motivational interviewing (MI) is commonly used to address problematic behaviours that result in chronic health conditions, such as diabetes, hypertension and high cholestrol.[57] This brief, directive, client-centred, counselling approach aims to initiate a client's intrinsic motivation to change.[52,58] This motivation is conceptualised as a state of readiness for change. Therefore, it may fluctuate over time.[59,60] Consequently, lack of motivation or resistance to change is not perceived as an inherent personality trait within the client, but rather as something that is open to alteration.[59] MI is based on the philosophy that the client holds the key to successful behaviour change.[61] Key aspects of this approach are to assist the client to explore and resolve his or her ambivalence about the behaviour change, to provide feedback to the client, to encourage his or her responsibility for change, to offer advice and to provide a list of alternative behaviours. These key aspects must be tackled in congruence with the spirit of MI: the embodiment of empathetic and nonjudgemental respect for the client's autonomy and freedom of choice.[59,60] Clinicians who over-direct their focus to matters of technique sacrifice the spirit and style that are central to the approach.

MI is often described as a counselling style. Therefore, its technique is rendered secondary to its constructive conversational atmosphere in which the counsellor uses empathic listening to understand the client's perspective and to decrease his or her resistance to change.[62] MI uses strategies to explore the client's values and goals and to highlight conflicts and contradictions around undesired behaviours.[52] This cognitive dissonance intends to create conflict-driven discomfort within the client, thereby increasing the probability of instilling long-term behaviour changes.[61,62]

MI has been designed to be used in single, 40-minute sessions in primary healthcare settings to treat problem drinkers.[59] Therefore, it is highly applicable to changing the alcoholic consumption behaviour of both men and women. However, the majority of MI outcome studies do not provide sufficient information on the specifications of the intervention or modifications for particular target problems or populations.[63] As a result, it can be difficult to draw conclusions or make comparisons about its relative efficacy. Nevertheless, researchers have shown that MI is often as effective as more extensive treatment approaches to alcohol use.[50,61] Evidence further suggests that MI is an optimal intervention strategy for individuals whose alcohol consumption is high, but who are not necessarily alcohol-dependent.[61] This is reflected in reviews of motivational treatment approaches that provide overwhelming support for its use in the treatment of heavy drinkers in a variety of urban and rural settings.[64] This means that MI could be useful in managing the FAS epidemic in the Western Cape as the high episodic alcoholic consumption patterns in these rural and urban areas are not necessarily addictive in nature.[2,18, 21]

A pilot study in the USA demonstrated the potential efficacy of MI as a moderator for alcohol consumption in existing pregnant drinkers.[65] In particular, this study compared MI efficacy with a traditional information-based intervention approach. The results of the study demonstrated a significant reduction in blood alcohol concentrations in the later stages of pregnancy in women who received the MI intervention.[65] However, researchers have yet to investigate

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its efficacy in reducing the prevalence of FAS in a South African context.

Although MI possesses potent potential as a micro-level preventative intervention strategy, it is clear that it does not address many of the previously mentioned barriers to behaviour change.

In order to develop the most effective micro-level intervention for FAS, MI may need to be coupled with cognitive behavioural therapy (CBT). CBT is a short-term, problem-focused psychosocial intervention that is highly effective in alleviating depression, panic disorders, generalised anxiety and obsessive-compulsive disorders.[66] However, over the years, numerous cognitive-behavioural interventions have been developed to treat alcohol dependence.[67] CBT acknowledges that the inability to cope with life stressors, as well as the presence of alcohol cues, maintain excessive drinking habits, and thus may lead to a continuation of drinking following aborted cessation attempts.[67] Despite small differences in the length, content and setting of CBT approaches to alcohol dependence, all CBT-based approaches emphasise the importance of cognitive and behavioural coping techniques for successful behavioural change.[68,69] As a result, all CBT interventions make use of some form of coping skills training to address cognitive and behavioural coping deficits.[68] This includes skills such as physical activities, relaxation or distraction techniques.[67] Therefore, CBT can be used to instil in women of childbearing age the ability to recognise the situations in which they are most likely to drink, avoid compromising circumstances and learn to cope with triggers to their substance use.[37,67]

Tackling unhelpful thinking styles is another important component of CBT. Unhelpful thinking styles tend to reflect habitual and consistent thought patterns which contribute to the expression of particular problematic behaviours.[66] Helping the client take note of these unhelpful thinking patterns is an important first step in the process of behaviour change.[66] Therefore, CBT is useful in targeting and resolving the perpetuation of unhelpful thinking styles that relate to the low self-efficacy, self-esteem and depressive tendencies exhibited by women in the Western Cape community. Furthermore, researchers argue that pregnant mothers from the Western Cape community commonly employ problematic thought processes to justify drinking alcohol.[37]These women rationalise their continued drinking and are typically in complete denial of the debilitating effects of their consumption behaviour.[37] CBT techniques aim to confront problematic thoughts and enable women to adjust the problematic thinking, feeling and behaviour that results in the perpetuation of FAS in their society.[66,67]

Research has repeatedly established that CBT interventions for alcohol dependence are effective in reducing alcohol consumption.[67,70,71] As a consequence, coping skills training, inherent in CBT, has become the standard to which other treatments for alcohol dependence are compared.[67] Even rival approaches such as 12-step and psychodynamic treatments acknowledge the value of CBT and have proposed methods to incorporate CBT techniques into their treatment models.[72]

Conclusion

No single strategy will reduce or eliminate the burden of alcohol misuse in society, so the unique combination of MI and CBT provides hope in its ability to powerfully address drinking behaviour that leads to FAS. These individual-based approaches have yet to be employed in South Africa's vulnerable communities despite the wealth of evidence that illustrates their inherent potential in targeting high-risk groups and reducing per capita alcohol consumption.

References

1. Barry CDH. South Africa alcohol today. Addiction. 2005;100(4):426-429.
2. London L, Sanders D, te Water Naude J. Farm workers in South Africa: the challenge of eradicating alcohol abuse and the legacy of the "dop" system. S Afr Med J. 1998;88(9):1092-1094.
3. Schneider L, Norman R, Parry C, et al. Estimating the burden of disease attributable to alcohol in South Africa in 2000. S Afr Med J. 2007;97(8):664-672.
4. Department of Health, Medical Research Council, Maro International. South African Demographic and Health Survey, 1998: full report. Pretoria: Department of Health; 2001.
5. Rehm J, Room R, Monteiro M, et al. Alcohol. In: Ezatti M, Lopez AD, Rodgers A, Murray CJL, editors. Comparative quantification of health risks: global and regional burden of disease attributable to selected risk factors. Geneva: World Health Organization, 2004; p. 959-1108.
6. World Health Organization. Alcohol in developing countries: a public health approach. Geneva: World Health Organization; 2002.
7. Rehm J, Rehn N, Room R, et al. The global distribution of average volume of alcohol consumption and patterns of drinking. European Addict Res. 2003;9(4):147-156.
8. Reid MC, Fiellen DA, O'Connor PG. Hazardous and harmful alcohol consumption in primary care. Archives Intern Med. 1999;159(15):1681-1689.
9. Peltzer K, Ramlagan S. Alcohol use trends in South Africa. J Soc Sci. 2009;18(1):1-12.
10. May PA, Gossage JP, Brooke LE, et al. Maternal risk factors for Fetal Alcohol Syndrome in the Western Cape Province of South Africa: a population-based study. Am J Public Health. 2005;95(7):1190-1199.
11. Sampson PD, Streissguth AP, Bookstein FL, et al. Incidence of Fetal Alcohol Syndrome and prevalence of alcohol-related neurodevelopmental disorder. Teratology. 1997;56(5):317-326.
12. Waltman R, Iniquez E. Placental transfer of ethanol and its elimination at term. Obstet Gynecol. 1972;40(2):180-185.
13. Abel EL. Procedural considerations in evaluating prenatal effect of alcohol in animals. Neurobehav Toxicol. 1980;2:167-174.
14. Osborn JA, Harris SR, Weinberg J. Fetal Alcohol Syndrome: review of literature with implications for physical therapists. Phys Ther. 1993;73(9):599-607.
15. May PA, Brooke L, Gossage JP, et al. Epidemiology of Fetal Alcohol Syndrome in South African community in the Western Cape Province. Am J Public Health. 2000;90(12):1905-1912.
16. Meyer LS, Koch LE, Riley EP. Alterations in gait following ethanol exposure during the brain growth spurt in rats. Alcohol Clin Exp Res. 1990;14(1):23-27.
17. Rosett KL, Weiner I, Lee A. Patterns of alcohol consumption and fetal development. Obstet Gynecol. 1983;61(5):539-546.
18. Barr H, Streissguth A. Identifying maternal self-reported alcohol use associated with Fetal Alcohol Spectrum Disorders. Alcohol Clin Exp Res. 2001;25(2):283-287.
19. Astley SJ, Bailey D, Talbot C, Clarren SK. Fetal Alcohol Syndrome (FAS) primary prevention through FAS diagnosis. I. Identification of high-risk birth mothers through the diagnosis of their children. Alcohol. 2000;35(5):499-508.
20. Astley SJ, Bailey D, Talbot C, Clarren SK. Fetal Alcohol Syndrome (FAS) primary prevention through FAS diagnosis. II. A comprehensive profile of 80 birth mothers of children with FAS. Alcohol. 2000;35(5):509-519.
21. Viljoen DL, Gossage JP, Brooke L, et al. Fetal Alcohol Syndrome epidemiology

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in a South African community: a second study of a very high prevalence area. J Stud Alcohol. 2005;66(5):593-604.
22. Rendall-Mkosi K, London L, Adnams C, et al. Fetal Alcohol Spectrum disorder in South Africa: situational and gap analysis (dissertation). Cape Town: University of Cape Town; 2008.
23. May PA, Gossage JP, White-country M, et al. Alcohol consumption and other maternal risk factors for Fetal Alcohol Syndrome among three distinct samples of women before, during, and after pregnancy: the risk is relative. Am J Med Genet. 2004;127C(1):10-20.
24. Ikonomidou C, Bittigau P, Ishimaru MJ, et al. Ethanol-induced apoptotic neurodegeneration and Fetal Alcohol Syndrome. Science. 2000;287(5455):1056-1060.
25. Abel EL, Sokol RJ. Incidence of fetal alcohol syndrome and economic impact of FAS-related anomalies: drug alcohol syndrome and economic impact of FAS-related anomalies. Drug Alcohol Depend. 1987;19(1):51-70.
26. May P, Gossage J. Estimating the prevalence of fetal alcohol syndrome. Alcohol Res Health. 2001;25(3):159-167.
27. Schneider M, Norman R, Parry C, Bradshaw D, Plüddeman A. The SA Comparative Risk Assessment Group. S Afr Med J. 2007;97(8):664-672.
28. London L. Human rights, environmental justice, and the health of farm workers in South Africa. Int J Occup Environ Health. 2003;9(1):59-68.
29. Riley EP, Mattson SN, Li TK, et al. Neurobehavioral consequences of prenatal alcohol exposure: an international perspective. Alcohol Clin Exp Res. 2003;27(3):362-73.
30. McKinstry J. Using the past to step forward: Fetal Alcohol Syndrome in the Western Cape Province of South Africa. Am J Public Health. 2005;95(7):1097-1099.
31. McKinstry MS. Fetal Alcohol Syndrome prevention in South Africa and other low resource countries. Am J Public Health. 2005;95(7):1099-101.
32. King G, Flisher AJ, Noubary F, et al. Substance abuse and behavioural correlates of sexual assault among South African adolescents. Child Abuse Negl. 2004;28(6):683-696.
33. Connor PD, Streissguth AP. Effects of prenatal exposure to alcohol across the life span. Alcohol Health Res W. 1996;20(3):170-174.
34. Streissguth A, Kanter J. The challenges of Fetal Alcohol Syndrome overcoming secondary disabilities. Seattle: University of Washington Press; 2002.
35. Roberts G, Nanson J. Best practices: Fetal Alcohol Syndrome/fetal alcohol effects and the effects of other substance use during pregnancy. Ottawa: Government of Canada Publications; 2001.
36. Bates ME, Bowden SC, Barry D. Neurocognitive impairment associated with alcohol use disorders: implications for treatment. Exp Clin Psychopharm. 2002;10(3):193-212.
37. Campbell TL. The experiences of mothers who raise children with Fetal Alcohol Syndrome: a collective case study (dissertation). Stellenbosch: Stellenbosch University; 2007.
38. Viljoen D, Croxford J, Gossage JP, et al. Characteristics of mothers of children with Fetal Alcohol Syndrome in the Western Cape province of South Africa: a case control study. J Stud Alcohol. 2002;63(1):6-17.
39. Penn C, Watermeyer J, MacDonald C, Moabelo C. Grandmothers as gems of genetic wisdom: exploring South African traditional beliefs about the causes of childhood genetic disorders. J Genet Couns. 2010;19(1):9-21.
40. Philip A, May J, Gossage P, et al. The epidemiology of Fetal Alcohol Syndrome and partial FAS in a South African community. Drug Alcohol Depend. 2007;88(2-3):259-271.
41. Parry CDH, Bennetts A. Alcohol policy and public health in South Africa. Cape Town: Oxford University Press; 1998.
42. Edwards G, Anderson P, Babor TF, et al. Alcohol policy and the public good. Oxford: Oxford University Press; 1994.
43. Olson HC, Jirikowic T, Kartin D, Astley, S. Responding to the challenge of early intervention for Fetal Alcohol Spectrum Disorders. Infant Young Child. 2000;20(2):172-289.
44. Smith IE. FAE/FAS: prevention, intervention and support services commentary on Burd and Juelson, Coles, and O'Malley and Steissguth. In: Tremblay RE, Barr RG, Peters RDV, editors. Encyclopedia on Early Childhood Development. Montreal, Quebec: Centre of Excellence for Early Childhood Development, 2003; p. 1-7.
45. Little RE, Young A, Streissguth AP, Uhl CN. Preventing fetal alcohol effects: effectiveness of a demonstration project. Ciba Found Symp. 1984;105:254-274.
46. Smith IE, Lancaster JS, Moss-Wells S, et al. Identifying high-risk pregnant drinkers: biological and behavioural correlates of continuous heavy drinking during pregnancy. J Stud Alcohol. 1987;48(4):304-309.
47. Wallace P, Cutler S, Haines A. Randomised controlled trial of general practitioner intervention in patients with excessive alcohol consumption. BMJ. 1988;297(6649):663-668.
48. Rollnick S, Kinnersley P, Stott N. Methods of helping patients with behaviour change. BMJ. 1993;307(6897):188-190.
49. Kottke T, Battista RN, Degriese G, Brekke M. Attributes of successful smoking cessation interventions in medical practice: A meta analysis of 30 controlled trials. JAMA. 1988;259(19):2882-2889.
50. Bien T, Miller WM, Tonigan J. Brief interventions for alcohol problems: a review. Addiction. 1993;88(3):315-336.
51. Tuckett D, Boulton M, Olsen C, Williams A. Meetings between experts: an approach to sharing ideas in medical consultations. London: Tavistock; 1985.
52. Miller WR, Rollnick S. Motivational interviewing: preparing people to change addictive behaviors. New York: Guilford; 1991.
53. Ockene J, Kristeller J, Goldberg R, et al. Increasing the efficacy of physician-delivered smoking interventions: a randomised controlled trial. J Gen Intern Med. 1991;6(1):1-8.
54. Kaplan S, Greenfield S, Ware J. Assessing the effectiveness of patient-centred interactions on the outcome of chronic diseases. Med Care. 1989;27:110-127.
55. Stewart M, Roter D. Communicating with medical patients. London: Sage; 1989.
56. De Waal J. Foetal alcohol spectrum disorder: mediating interventions through pregnant women's responses and choices (dissertation). Stellenbosch: Stellenbosch University; 2010.
57. Emmons KM, Rollnick S. Motivational interviewing in health care settings: opportunities and limitations. Am J Prev Med. 2001;20(1):68-74.
58. Rollnick S, Miller W. What is motivational interviewing? Behav Cogn Psychoth. 1995;23(4):325-334.
59. Miller WR. Motivational interviewing with problem drinkers. Behav Psychother. 1983;11:147-172.
60. Miller WR. Motivational interviewing. III. On the ethics of motivational interviewing. Behav Cogn Psychol. 1994;22:111-123.
61. Brown JM. The effectiveness of treatment. In: Heather N, Stockwell T, editors. Treatment and prevention of alcohol problems. London: John Wiley, 2004; p. 9-20.
62. Rollnick S, Allison J. Motivational interviewing. In: Heather N, Stockwell T, editors. Treatment and prevention of alcohol problems. London: John Wiley, 2004; p. 9-20.
63. Britt E, Hudson SM, Blampied NM. Motivational interviewing in health settings: a review. Patient Educ Couns. 2004;53(2):147-155.
64. Miller WR, Andrews NR, Wilbourne P, Bennett ME. A wealth of alternatives: effective treatments for alcohol problems. In: Miller WR, Heather N, editors. Treating addictive behaviors. New York: Plenum, 1998; p. 203-216.
65. Handmaker NS, Miller WR, Manicke M. Findings of a pilot study of motivational interviewing with pregnant drinkers. J Stud Alcohol. 1999;60(2):285-287.
66. Williams C, Garland A. A cognitive-behavioural therapy assessment model for use in everyday clinical practice. Adv Psychiatr Treat. 2002;8:172-179.
67. Miller WR, Brown JM, Simpson TL, et al. What works? A methodological analysis of the alcohol treatment outcome literature. In: Hester RK, Miller WR, editors. Handbook of alcoholism treatment approaches: effective alternatives. Boston: Allyn and Bacon, 1995; p. 12-44.
68. Bandura A. Social foundations of thought and action. New Jersey: Prentice Hall; 1986.
69. Abrams DB, Niaura RS. Social learning theory. In: Blane HT, Leonard KE, editors. Psychological theories of drinking and alcoholism. New York: Guilford Press, 1987; p. 131-178.
70. Holder H, Longabaugh R, Miller WR, Rubonis AV. The cost-effectiveness of treatment for alcoholism: a first approximation. J Stud Alcohol. 1991;52(6):517-540.
71. Roth A, Fonagy P. What works for whom: a critical review of psychotherapy research. New York: Guilford Press; 1996.
72. Keller DS. Exploration in the service of relapse prevention: a psychoanalytic contribution to substance abuse treatment. In: Rotgers F, Keller DS, Morgenstern J, editors. Treating substance abuse: theory and technique. New York: Guilford Press; 1996.